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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,690

10/18/2005

John S. Hayward

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EXAMINER

PILKINGTON, JAMES

ART UNIT

PAPER NUMBER

3656

MAIL DATE

DELIVERY MODE

11/03/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,690	Applicant(s) HAYWARD ET AL.	
	Examiner JAMES PILKINGTON	Art Unit 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-25 and 29-37 is/are rejected.
- 7) ☒ Claim(s) 26-28 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/18/05 2/5/07 6/21/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the arc extending approximately 360 degrees (clm 33) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Information Disclosure Statement

2. The information disclosure statement filed 10/18/05 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

3. Claims 19 and 34 are objected to because of the following informalities: Claim 19, lines 6 and 9 and Claim 34 lines 9 and 12, "interengaging" should be - - engaging- -. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 23 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 recites that there is at least one reduced diameter roller however there is no frame of reference for a comparison. What is the reduced diameter relative to? Another roller? Or the diametric distance between the gear teeth?

Claim 32, the limitation "at least approximately 180 degrees" renders the claim indefinite since it is not clear if 180 is part of this range or not. "At least" suggests that

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180 and higher is part of the range but the term "approximately" suggests that it may not be 180 degrees and could be something less than 180. For clarity the Examiner suggests that the Applicant remove "at least" or "approximately" as is done in claim 33.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 19-25 and 29-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherman, USP 5,607,238, in view of Schroder, USP 4,856,917.

Sherman discloses a roller bearing assembly comprising:

- first (26/32/54) and second (22/32/54) bearing races
- the first bearing race (26/32/54) having a first set of gear teeth (in 54) and the second bearing race (22/32/54) having a second set of gear teeth (in 54) opposed to the first set of gear teeth;
- a first toothed gear (52, see figures 14 and 15) positioned between the first and second bearing races (26/32/54, 22/32/54) and engaging the first and second sets of gear teeth;
- a first gear support (50 or 610) coupled with the first gear (52);

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- a second toothed gear (52, Figure 15) positioned between the first and second bearing races (26/32/54, 22/32/54) and engaging the first and second sets of gear teeth;
- a second gear support (50 or 610) coupled with the second gear (52);
- a plurality of rollers (40) positioned between the first and second bearing races (26/32/54, 22/32/54);
- wherein the first and second gear supports (50 or 610) are spaced apart to define ends of a pocket containing the plurality of rollers (40)
- wherein the first bearing race (26/32/54) has a first bearing surface (on 32) in contact with the rollers (40) and the second bearing race (22/32/54) has a second bearing surface (on 32) in contact with the rollers (40)
- wherein the first set of gear teeth are pierced through the first bearing surface (32, arranged in the opening between the surfaces of the race) and the second set of gear teeth are pierced through the second bearing surface (32, arranged in the opening between the surfaces of the race) such that the first and second sets of gear teeth do not interfere with the first and second bearing surfaces (32)
- wherein the first set of gear teeth (on 54) extend from the first bearing surface toward the second bearing race and the second set of gear teeth extend (on 54) from the second bearing surface toward the first bearing race

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- wherein the plurality of rollers (40) includes at least one reduced diameter roller configured to travel between the first and second sets of gear teeth (all gears are of a reduced diameter and travel between the gear teeth)
- wherein the first bearing race (26/32/54) includes a first and third flange extending from the first bearing surface (32) toward the second bearing race (22/32/54) and the second bearing race (22/32/54) includes a second and fourth flange extending from the second bearing surface toward the first bearing race in alignment with the first/third flange (the flanges are the sides of 22 and 26 extending along the race members 54 and 32, there are two of these extensions on each part for a total of four flanges)
- wherein the gear supports (50 or 610) are each configured to support a shaft (56) that supports the respective gear (52)
- wherein adjacent rollers (40) of the plurality of rollers (40) abut one another (see Figures 14, 18 and 19)
- wherein the plurality of rollers (40) are supported between the gear supports (50 or 610) without a roller cage

Sherman does not disclose that the bearing races are arcuate and wherein the first and second bearing races extend over an arc of at least approximately 180 degrees.

Schroder teaches that bearing races (1 and 3) can be formed in an arcuate shape and wherein the first and second bearing races extend over an arc of at least

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approximately 180° for the purpose of providing support for rotational movement verses linear.

It would have been obvious to one having ordinary skill in the art at the time the invention was to try modifying Sherman and make the bearing races arcuate which extends in an arc of at least approximately 180 degrees for the predictable result of arranging the bearing so that it can support a rotational movement instead of linear.

Re clm 33, Sherman in view of Schroder discloses all of the claimed subject matter above.

Sherman in view of Schroder does not disclose that the first and second bearing races each extend over an arc of approximately 360°.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sherman in view of Schroder and make the arc extend approximately 360 degrees to yield the predictable result of increasing the angular range of motion in which the bearing operates.

Allowable Subject Matter

8. Claims 26-28 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES PILKINGTON whose telephone number is (571)272-5052. The examiner can normally be reached on Monday - Friday 7-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571)272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. P./
Examiner, Art Unit 3656
10/28/08

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3656

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